

ABSTRACT OF THE DISCLOSURE

The present invention, generally speaking, provides methods and apparatus for producing an amplitude modulated communications signal, in which a constant-envelope carrier signal is modified in response to a power control signal to produce a modified constant-envelope carrier signal. The modified constant-envelope carrier signal is amplified in response to an amplitude modulation signal to produce a communications signal having amplitude modulation and having an average output power proportional to a signal level of the modified constant-envelope carrier signal. This manner of operation allows wide dynamic range of average output power to be achieved. Because amplitude modulation is applied after amplitude varying circuitry used to produce the modified constant-envelope carrier signal, the amplitude modulation is unaffected by possible non-linearities of such circuitry. In accordance with another aspect of the invention, operation in the foregoing manner at comparatively low average output power levels is combined with switch mode operation at comparatively high average output power levels, enabling high overall efficiency to be achieved. Hence, the disclosed modulator and amplifier combination, in addition to supporting very low power signals, also supports high power signals.